(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 10 February 2005 (10.02,2005)

PCT

(10) International Publication Number WO 2005/011712 A1

(51) International Patent Classification⁷: A61K 35/72, 35/80, 31/07, 31/355, A61P 39/06

(21) International Application Number:

PCT/US2004/024314

(22) International Filing Date: 26 July 2004 (26.07.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/490,121

25 July 2003 (25.07.2003) US

(71) Applicant (for all designated States except US): WASH-INGTON STATE UNIVERSITY RESEARCH FOUNDATION [US/US]; N.E. 1610 Eastgate Blvd., Pullman, WA 99163 (US).

(72) Inventors; and

- (75) Inventors/Applicants (for US only): CHEW, Boon, P. [US/US]; NW 340 Dillon, Pullman, WA 99163 (US). PARK, Jean, Soon [KR/US]; 1925 NW Valhalla Dr., Pullman, WA 99163 (US).
- (74) Agent: HARDING, Tanya, M.; Klarquist Sparkman, LLP, One World Trade Center, 121 SW Salmon Street, Suite 1600, Portland, OR 97204 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

of inventorship (Rule 4.17(iv)) for US only

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: NATURAL ASTAXANTHIN EXTRACT REDUCES DNA OXIDATION

(57) Abstract: Provided herein are methods for reducing oxidative DNA damage in a subject, by administering to the subject astaxanthin, for instance a natural, astaxanthin-enriched extract from *Haematococcus pluvialis*. It is shown that doses as low as 2 mg/day, given orally to a human subject for a period of four weeks, is sufficient to reduced measurable endogenous oxidative DNA damage by about 40%.